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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D. C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

In the Matter of )  
 ) CC Docket No. 94-102  
Revision of the Commission's rules )  
to ensure compatibility with ) RM-8143  
enhanced 911 emergency calling systems )

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**The NYNEX Companies' Comments**

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## **SUMMARY**

In this proceeding, the Commission proposes to amend and adopt rules that would require compatibility of private branch exchange and other dispersed private telephone systems with enhanced 911 emergency services and would require wireless services that provide real time voice services to include features that will make 911 services available to mobile radio callers. NYNEX generally supports the FCC's efforts to promote E911 services.

We support the rules proposed by the Commission in connection with the compatibility of PBX systems with 911 services but we caution the Commission to fully address and resolve issues concerning the appropriate methods by which these costs may be recovered before adopting final rules.

The Commission's proposals in connection with wireless services are premature. The proposed rules are based on technologies that are currently not generally available and, as a result, would establish overly ambitious deployment targets that could not be met by the majority of wireless service providers. We strongly urge the Commission to defer its consideration of these proposals pending further review by industry experts in forums convened to address and reach consensus on the cost considerations, technical standards, and other issues bearing on this matter.

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**The NYNEX Companies' Comments**

The NYNEX Companies ("NYNEX")<sup>1</sup> submits these comments in response to the Notice of Proposed Rulemaking ("NPRM") released October 19, 1994 by the Federal Communications Commission ("FCC" or "Commission") in the proceeding referenced above.

**I. INTRODUCTION AND SUMMARY**

In the NPRM, the Commission seeks comment on its proposals to amend Part 68 of the Commission's Rules, 47 C.F.R. §68, by adopting provisions that would (1) require compatibility of private branch exchange and other dispersed private telephone systems (collectively referred to as "PBXs") with enhanced 911 emergency services and (2) require wireless services that provide real time voice services to include features that will make 911 services available to mobile radio callers. The Commission's objective in this proceeding is to adopt uniform rules to "ensure broad availability of 911 and enhanced 911 ("E911") services to users of the public switched telephone network whose health

<sup>1</sup> The NYNEX Companies are New York Telephone, New England Telephone and Telegraph Company, and NYNEX Mobile Communications Company.

and safety may depend on emergency service systems.”<sup>2</sup> The Commission seeks comment on several issues raised by its proposals, including cost considerations, technical concerns and the categories of providers that should be subject to the rules.

NYNEX supports the FCC’s efforts to promote E911 services. We believe that E911 services should be as widely available as technology permits and that this NPRM is an important step in ensuring that emergency services are efficiently provided and widely available.

For the most part, NYNEX supports the rules proposed by the Commission in connection with PBXs and the compatibility of such systems with 911 services. The Commission should recognize, however, that compliance with those rules is likely to be costly. Issues concerning the appropriate methods by which these costs may be recovered must be considered before final rules are adopted.

As regards wireless services, the Commission’s proposals are based on technologies that are currently not generally available. As a result, while laudable in intent, the Commission’s current proposals would establish overly ambitious deployment targets that could not be met by the majority of wireless service providers. In addition, implementation of fully enhanced 911 systems for wireless services promises to be very costly and the manner in which wireless carriers are to be permitted to recover the costs of implementation must be resolved before any final rules are adopted. In these comments, NYNEX offers its preliminary views and suggestions in connection with the Commission’s proposals. However, we believe that a better course would be to defer

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<sup>2</sup> NPRM at para. 1.

consideration of the Commission's specific proposals pending further review by industry experts in forums convened to address and reach consensus on the technical and other issues associated with wireless E911.

## **II. THE COMMISSION SHOULD ADOPT ITS PBX PROPOSALS WITH SOME MINOR MODIFICATIONS**

NYNEX agrees with the FCC that, because the incompatibility of PBXs with enhanced emergency systems could result in the provision of emergency services in a manner that is less than optimal, uniformity is an appropriate objective regarding the interconnection of PBXs with E911 systems.<sup>3</sup> In supporting Adcomm Engineering Company's Petition for Rulemaking, NYNEX urged the development of uniform national technical requirements developed by industry representatives. As noted by the Commission in the instant proceeding, the industry has come forward with a proposed solution. As a result, a subcommittee of the Multi-line Telecommunications Committee, operating under the auspices of the Telecommunications Industry Association ("TIA") planned to conduct final voting at the end of 1994 on technical standards for PBXs in connection with E911 systems. The rules proposed in this NPRM are based largely on the TIA's Technical Systems Bulletin ("TSB-103") which addresses dialing, call routing, and caller location database issues associated with the compatibility of E911 with dispersed private telephone system. These rules should be adopted with minor modifications.

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<sup>3</sup> See Reply Comments filed by NYNEX, In the Matter of Adcomm Engineering Company's Petition for Rulemaking for Amendment of the Commission's Rules to Define Effective Means for Interworking of Customer Premises Equipment and Public Enhanced 911 (E911) Systems, RM 8143, filed February 11, 1993.

A. PBX System Operators Should Be Responsible for ALI Database Administration

The rules adopted by the Commission must be implemented in the least costly manner and the cost burdens associated therewith must be assigned appropriately. The maintenance procedures used to ensure that the ALI database is complete and accurate will be a significant cost incurred by the 911 service provider.<sup>4</sup> These costs should be borne by the PBX operator or customer who installs a private system.

For NYNEX, the E911 system is designed with a centralized ALI database organized by telephone number. Our Computer Operations Center receives customer information on tape or diskette form or via electronic transmission, downloads that initial data into the Data Base Management System (DBMS), and manually loads the customer information into the Enhanced 911 ALI database. Any modifications required to reflect changes in customer information are loaded into the DBMS and the E911 ALI database on a daily basis. Emergency calls are processed as follows. First, incoming 911 calls deliver Automatic Number Identification ("ANT") information to the Public Safety Answering Points ("PSAPs"). The PSAPs, or E911 tandems, then perform an ALI "dip" -- or data retrieval -- from the ALI database in order to recover the customer name and location associated with that telephone number.

Obviously, the accuracy and integrity of the ALI database is crucial in order to facilitate prompt and appropriate responses in emergency situations. Thus, it is critical that the party responsible for the ALI database administration must work vigilantly to

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<sup>4</sup> Other costs associated with network and switching facilities will be incurred by network service providers and should be recovered through tariffed rates. *See, infra.*, Section II, C.

ensure that the data is accurate, current and secure. We believe that PBX system operators or customers who install private systems should be responsible for the accuracy of the ALI database entries for their telephone numbers. Those parties -- and not telephone companies nor other 911 service providers -- have access to the customer information that is essential to the accuracy and integrity of the database and are therefore best positioned to administer the initial downloading and daily upgrading processes. The Commission should require PBX operators or customers who install private systems to administer the data entry process and should ensure that the PBX operators are responsible for the accuracy of their ALI database entries.<sup>5</sup>

#### B. The ALI Downloading Process Should Be Mechanized

NYNEX supports the Commission's proposal to require customers who install private systems to provide the telephone company with the number of trunk connections desired, the number of stations that may originate emergency calls and the number and identification of emergency response locations that will require number identification.<sup>6</sup> The Commission should also adopt rules that require mechanization of the ALI data downloading process for PBXs. The rules should also establish a minimum set of ALI fields as the standard to be imposed for each database entry.<sup>7</sup> Local authorities should be permitted to establish additional fields to be included in the ALI entries as deemed

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<sup>5</sup> We agree with the Commission that location information should be provided from the station behind the PBX switch. Since the ALI dip is performed using ANI, and the ALI database is organized using the telephone number, it is crucial that the ANI from the active telephone station be provided.

<sup>6</sup> See 47 C.F.R. § 68.106(f) (as proposed).

<sup>7</sup> This approach is supported by the National Emergency Number Association ("NENA") which has published a lengthy document of the Recommended Formats for Data Exchange.

appropriate by them. This approach would allow local jurisdictions to establish rules best suited to the nature of their particular region. The requirement that the ALI data downloading process be mechanized should apply to all ALI database entries, including modifications that reflect changes in customer information.

In addition, NYNEX offers the following suggestions:

- PBX vendors should be required to provide an initial download of the ALI information associated with every live station telephone number behind the switch, organized with the telephone number as the key. (This can be accomplished as a batch process, but may be negotiated locally in order to accommodate specific features such as PBX size and downloading medium.)
- PBX operators must provide ALI information in the format agreed upon in negotiations with the local E911 providers. PBX operators must be responsible for updating ALI information every 24 hours. Updates must indicate any ALI information that may have changed. After updating ALI information, PBX providers must be responsible for downloading the updates to the E911 provider. ALI updates must be transmitted through a secure procedure, as determined by the local E911 provider and subject to the review of the local authority or board overseeing E911.
- Proposed Section 68.106 should be modified to require that: Embedded PBXs that are technically capable of transmitting station number identification "SNT" (as per 68.228) and undergo additions or modifications after [insert date] shall comply with the rules.
- PBX systems should have at least two diverse routed trunks connected to the central office for redundancy. The SNI from the PBX should be delivered directly to the E911 tandem switch via these diversely-routed trunks.<sup>8</sup> The tandem switch can then forward the call to the PSAP and the ALI dip could be initiated either at the E911 tandem or the PSAP depending upon the type of network architecture deployed.

These measures will help to ensure the integrity and accuracy of caller location information and will promote a timely, unimpaired response by emergency services personnel.

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<sup>8</sup> The PBX subscriber should obtain these trunk facilities from their local exchange provider at tariffed rates.

**C. Local Emergency Services Authorities Should Be Permitted to Design  
Appropriate Funding and Cost Recovery Mechanisms**

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NYNEX believes that issues concerning how best to recover the costs associated with dispersed telephone system access to E911 are best left to state or local emergency services authorities to resolve in a process that involves input from local citizenry and negotiations with emergency service providers.<sup>9</sup> Because E911 service and funding requirements are likely to vary from region to region, uniformity is not desirable with respect to cost recovery and there is no need to establish a federal policy in this regard. Presently, in the region NYNEX serves, several different cost recovery mechanisms are in place. For example, in New England, we deal with the individual states as the customers, while in New York the counties serve as customers. In most cases, a form of monthly surcharge is charged to each customer account. However, the funding mechanisms vary from state to state and, in some cases, from county to county. The general public, as well as PBX operators, all benefit if PBXs have PS/ALI capability. Therefore, the costs associated with this capability should be apportioned between the rate base and the PBX operators under an arrangement negotiated and governed by the state or local E911 board or authority.

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<sup>9</sup> The significant portion of the costs with Private Switch/Automatic Line Identification ("PS/ALI") solution for PBX's, the solution the Commission proposes to adopt, lies in the network, both trunking and additional switching equipment required to provide access to the E911 tandem from the PBX. These costs should be

### **III. THE COMMISSION SHOULD DEFER ADOPTION OF TECHNICAL STANDARDS FOR WIRELESS SYSTEMS PENDING INDUSTRY ANALYSIS**

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For wireless services, the Commission has proposed that ALI, station number identification ("SNF"), selective routing and other features be implemented for 911 calls. The Commission also seeks comments regarding how the proposed rules should be applied to existing wireless systems, which wireless service providers should be subject to these rules and the costs and benefits of the various features proposed.

NYNEX supports the Commission's efforts to promote the availability of E911 service to users of wireless services. We are concerned, however, that in its attempt to pursue uniformity, the Commission has inappropriately proposed to apply requirements for wireless access to E911 that are similar to those that are in place for landline services. In so doing, the Commission has not fully recognized and accounted for the inherent difference between the two systems: the existence (or in the case of a wireless system, the lack of) a single, static location of the calling party. The task of identifying the location of landline calling parties, or for that matter, calling parties using a dispersed telephone system, simply cannot be compared with the task of identifying and then providing the location of a mobile customer who may be traveling along a highway at 55 MPH, negotiating through heavy vehicular or pedestrian traffic on congested streets or riding on an elevator somewhere inside a 110 story office tower.

The mobile nature of wireless customers and the unique characteristics of radio frequency propagation will require that new technologies be developed to integrate special location capabilities into wireless systems and that existing emergency service

systems be adapted to the mobile environment and the new technologies in order to provide many of the functions proposed by the Commission, particularly those defined for stages 2 and 3 of its proposals.<sup>10</sup> At some future point, these technological advances may enable wireless service providers to effectively deliver all of these capabilities. However, the Commission's proposed timelines for stages 2 and 3 that would require wireless providers to offer a similar level of access to E911 as landline customers within 5 years is simply unrealistic given the current technical limitations of wireless systems.

Even if technically feasible, NYNEX believes that the costs associated with the implementation of the Commission's proposals would have an adverse impact on the provision of wireless service that would far exceed the public benefits associated with its implementation. In view of these technical and financial concerns, NYNEX suggests that the Commission undertake the following approach. As an interim measure, the Commission should adopt its "stage 1" proposals which require wireless providers to design their system so that the location of the base station or cell site receiving a 911 call from a mobile unit is transmitted to the PSAP.<sup>11</sup> Before considering additional rules, the Commission should afford the industry a reasonable opportunity to address and develop technical standards and resolve the other issues associated with this matter.<sup>12</sup>

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<sup>10</sup> NPRM at paras. 50-53. These functions include the ability to provide an estimate of the approximate location of the mobile unit calculated on the basis of the received signal, to provide the mobile unit location in a 3 dimensional environment within a radius of no more than 125 feet, and to call back or re-ring the mobile unit.

<sup>11</sup> See NPRM at para. 49.

<sup>12</sup> Indeed, the Commission afforded the industry an opportunity to address similar issues in the context of emergency service access to PBXs. The industry consensus process resulted in the TIA's TSB-103 which formed the basis of the Commission's proposed rules.

**IV. IF THE COMMISSION ADOPTS A BROAD POLICY FOR WIRELESS SERVICES, MODIFICATIONS TO ITS PROPOSALS ARE REQUIRED**

The appropriate role for the Commission at this juncture is to encourage interested parties to participate in industry forums and to establish general guidelines for forum activity.<sup>13</sup> Any rules or deployment schedules adopted at this time are likely to be unrealistic, overly ambitious and, as a result, may effectively stifle any technological innovation that is likely to result from industry efforts to resolve these issues innovatively unhampered by regulatory mandates. NYNEX looks forward to contributing to the industry's efforts to address and resolve these important issues. If the Commission elects, however, to proceed with this rulemaking proceeding the Commission should consider the following NYNEX suggestions.

**A. All CMRS Providers Of Voice Services Should Be Subject To The Same Requirements**

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It is our view that, to the extent that any requirements for 911 or E911 access are applied to existing wireless service providers (e.g., cellular carriers), those same requirements should be placed on all CMRS providers of voice services, regardless of size or region served. Customers in rural areas should be able to expect the same quality of access to emergency services as customers in more densely populated or urban areas.

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<sup>13</sup> For example, the Commission could direct the industry group to address specific issues, including those raised in the NPRM and by commenters, and could establish a timetable within which the industry should resolve those issues.

**B. Callers Should Have The Ability To Dial "9-1-1" To Reach Emergency Services In Home Service Areas Or Subscribed-To Roamed Service Areas From Any Initialized Handset**

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The Commission has proposed that any mobile radio transmitter that is service initialized on a radio network, including handsets used on a roaming basis, be capable of transmitting a 911 call without user validation.<sup>14</sup> NYNEX supports this proposal. In areas where NYNEX manages a cellular system, we provide 911 access without a user validation requirement to all cellular callers within our calling area, including callers who may be using phones that are currently not in service due to nonpayment or other reasons and subscribers from other systems who may be roaming within our service area. For reasons of public safety, we strongly support this proposal and suggest its adoption as a minimum requirement for all CMRS providers of voice services, regardless of size.

**C. End-To-End Grade-Of-Service Issues Within Wireless Systems Should Be Addressed By CMRS Providers**

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The Commission has expressed concern that as the demand for wireless service increases, so might the incidence of blocked calls between mobile transmitters and the PSAPs.<sup>15</sup> NYNEX believes that in order to remain competitive, wireless carriers will find it imperative to design networks that will meet the ever growing demand of their customers. In fact, NYNEX designs its mobile networks to provide a high grade of service, striving to minimize the percentage of blocked calls. We avoid instances of blocked calls by adding radios or cell sites, thereby adding capacity, as demand grows.

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<sup>14</sup> NPRM at para. 41.

<sup>15</sup> NPRM at para. 42.

We agree with the Commission that federal standards in connection with blocked calls are not warranted at this time.<sup>16</sup> NYNEX believes that competitive forces will serve to minimize call blockage.

**D. Issues Regarding 911 Call Priority Must Be Fully Analyzed By The Industry  
Based On Emerging Technologies Before Any Rules Are Adopted**

The Commission has proposed that originating 911 calls receive priority over non-emergency related calls and seeks comment on the technical feasibility and cost of establishing 911 call priority for new and existing mobile radio networks.<sup>17</sup> NYNEX believes that while technological developments may eventually enable carriers to ensure that originating 911 calls have priority over other non-emergency calls, at present, the Commission's proposal for providing priority access is not technically and/or economically practical. For example, "solutions" involving coding through the handsets might be possible for new customer and/or service providers, but this approach ignores the large numbers of incumbent subscribers, making it impractical. Reserving radios at each site and cell sector for 911 calls is also not practical as it would result in the inefficient setting aside of valuable spectrum without regard to, and with no means to determine, the amount of spectrum that is actually needed for emergencies. Another system based solution could be to require CMRS switches to prioritize calls based on the called number. However, at this time mobile switches and cell sites are not technically capable of offering this functionality. Moreover, because of the unknown nature of calls, there is simply no means to determine, based on the called or calling number, the relative

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<sup>16</sup> NPRM at para. 43.

<sup>17</sup> NPRM at para. 44.

importance of calls in progress.<sup>18</sup> Accordingly, the Commission should defer action on this issue pending further analysis by the industry.

**E. ALI Capability Ultimately Should Be Integrated Into Wireless Network Equipment, But Only After The Wireless Industry Is Afforded An Opportunity To Develop And Analyze The Proper Network Solution**

The Commission has recognized that ALI (also called User Location Information) presents troublesome issues in the context of wireless calls because of the mobile nature of subscribers.<sup>19</sup> The Commission hopes that technology develops in a way that will permit wireless carriers to supply ALI to pinpoint the location of each mobile unit, not only by latitude and longitude, but also by elevation, and accurate within 125 meters. The Commission proposes that this objective be met within 5 years of the effective date of the order adopting this requirement. These objectives are praiseworthy, but may be overly ambitious and unachievable.

NYNEX's mobile subsidiary has worked with municipalities to develop techniques that would permit us to provide location information at a "cell face" -- or cell sector -- level. Under this scenario, each cell face is given a unique telephone number which is stored in the ALI database along with corresponding information regarding the geographic area that "face" covers for purposes of the PSAP to ALI database inquiry. The cell face telephone number is used as the ANI instead of the telephone number of mobile radio handset for purposes of the PSAP to ALI data "dip". This methodology

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<sup>18</sup> Indeed, any requirement that one call be interrupted in favor of another could have disastrous results if, for example, a call to a suicide hotline, poison control center or another call to 911 were interrupted in favor of a 911 call placed by a person wishing to report a fender bender traffic accident or other minor incident.

<sup>19</sup> NPRM at para. 45.

provides the capability to locate a call within a number of square miles.<sup>20</sup> This methodology is not wholly reliable, however, due to the inherent nature of radio frequency technology. For example, it is not uncommon for a cell site located near bodies of water to pick up a mobile station that is not within its footprint as a result of the radio waves "bouncing" on the water.<sup>21</sup>

NYNEX is currently in the early stages of investigating a number of newly-introduced, advanced network-based or handset-based location information technologies. The Commission must recognize, however, that the industry is years away from fully developing, testing and deploying location information technologies, either at the network level or in the handset. Moreover, taking into account the number of subscribers and wireless networks, the cost of implementing location identifying technologies is likely to be enormous.<sup>22</sup>

**F. It Is The Responsibility Of All Carriers, Including CMRS Providers, To Support Calls Placed From Text Telephone Devices ("TTDs")**

NYNEX agrees that all CMRS providers should support calls from Text Telephone Devices ("TTDs"). TTD users currently use wireless services and the dialing,

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<sup>20</sup> In urban areas, this may be as small as 1 square mile, while in rural areas it could exceed 30 square miles.

<sup>21</sup> These unique characteristics of radio make it imperative for the Commission to limit liability for CMRS providers only to features within their control.

<sup>22</sup> We estimate that the cost to convert the existing customer base to handset technologies that satisfy the Commission's objectives are likely to be between \$8 and \$20 billion. Current network-based solutions will involve overlay networks. The infrastructure costs to support those network overlays will be extremely large for NYNEX systems. It is premature at this juncture to estimate the additional costs, for the ALI database, PSAP, and other interconnected networks, that are likely to be associated with the location information technology.

routing and transmission of a call is no different than that required for a non-hearing impaired caller.

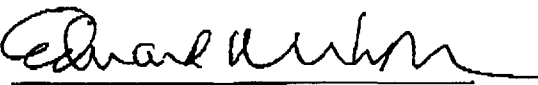
The Americans with Disabilities Act (ADA) requires that all emergency service providers provide functionally equivalent services to persons with disabilities. This requires all emergency service providers to be capable of receiving calls directly from TTD users. The ADA places the burden of having the proper equipment to communicate with a TTD caller on the emergency agency. Therefore, NYNEX suggests that the no new Commission rules are required to ensure access to 911 services for TTD users. Rather, the Commission should continue to work diligently to enforce existing requirements.

#### IV. CONCLUSION

For the reasons stated above, NYNEX supports the Commission's proposals regarding emergency service access to PBX and dispersed private telephone systems with minor changes. We do not support the adoption of the Commission's proposal in connection with wireless access to E911 services at this time. We have proposed a solution which will expand the 911 services available to wireless customers while providing the industry an opportunity to address and reach consensus on the technical and financial issues that are raised by the Commission's more expansive E911 proposal. Once industry consensus is reached, the Commission will be in a better position to determine what, if any, formal action may be required.

Respectfully submitted,

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## **CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing NYNEX COMPANIES' COMMENTS, was served by first class United States Mail, postage prepaid, on each of the parties indicated on the attached service list, this 9th day of January, 1995.

  
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